



University of Colorado at Boulder

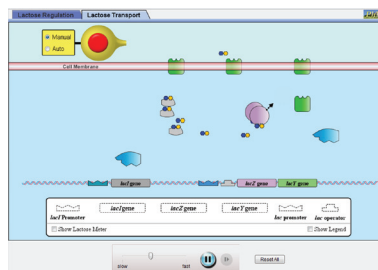
PhET News

<http://phet.colorado.edu>

SUMMER/FALL
2010

PhET's New Directions

While we're continuing to advance our core programs in designing and researching physics simulations and activities, we're also expanding into new disciplines, lower grade levels and new collaborations. We are actively developing sims in chemistry, and piloting programs in math, geology and biology. This fall we'll begin a new effort focused on middle schoolers, including research, simulation development and activity design specifically for younger learners. Finally, we're ramping up our collaboration efforts to reach more students and teachers. PhET is now listed in multiple teacher resource databases and used in several textbooks and online programs.



Words From Our Team....



Patricia Loeblein

Interview by Nina Zabolotnaya

The following is an interview with Patricia Loeblein, a teacher at Evergreen High School. Patricia works on our sims development teams, and among other roles, writes lessons for sims and attends conferences where she runs our teacher workshops. She's been involved with PhET since summer 2004 and recently won the Amgen Award for Science and Teaching Excellence.

NZ: What got you involved in the first place?

PL: I heard Carl Wieman speak at an ACS workshop and then I saw an opportunity to get involved with the STEM group at CU by at-

tending a STEM workshop in July of 2004.

NZ: How has PhET helped you in your teaching?

PL: PhET has enabled more discussion on the underlying models. PhET takes content from the text and relates it to students' lives, so they are more engaged in their own learning. Students demonstrate a higher level of understanding through their writings, lab designs, and evaluations.

NZ: What's the best thing PhET has to offer teachers and educators?

PL: I think the best things are the free well-written simulations that are based on ideas that have been identified to support learning goals for which teachers need better materials—as well as their example lessons.

NZ: What's the best thing PhET has to offer students?

PL: Probably the best thing for students is that they can explore freely without worrying about breaking equipment, have open-ended activities that allow them to drive their own learning, experiment with fewer changing variables, and see things that they couldn't see in regular labs or texts.

NZ: What direction do you see PhET moving in?

PL: I think PhET will grow into biology, chemistry, and earth science—and we will

Top 5 States

(number of sessions per year)

Texas	213,607
California	190,984
Colorado	173,755
Pennsylvania	165,725
New York	146,005

Over 10 million sims run from the website last year



THE WILLIAM AND FLORA
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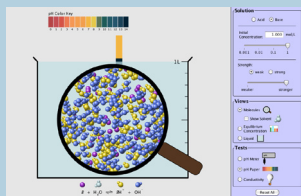
expand our efforts to help teachers of younger students meet national science standards. Also, I see us developing online workshops to help teachers who can't attend a workshop learn how best to use sims.

Want More Sims?

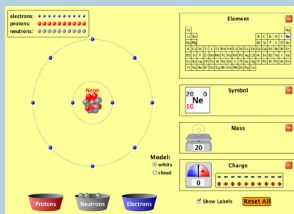
Gifts as small as \$10, \$20, or \$50 help develop, maintain and support our sims. We welcome partnering with schools and companies who believe in improving learning.

Contact Kathryn.Dessau@colorado.edu or click on [Donate Now](#) at our website.

Check Out Our New Simulations!



- Acid-Base Solutions
- Build An Atom
- Buoyancy
- Improved CCK
- Collision Lab
- Density
- Forces and Motion
- Gene Machine:
 - The Lac Operon
- Improved Greenhouse
- Improved Moving Man
- Natural Selection
- Neuron
- Reactants, Products and Leftovers
- Ramp: Forces and Motion



In Progress:

Coming 2011:

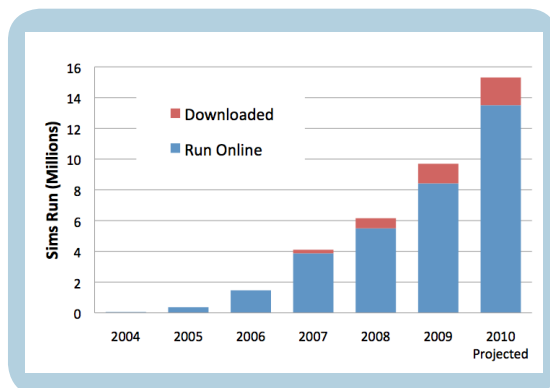
- Cell Membrane
- Titration Lab
- Balancing Reactions
- Capacitor Lab
- Electrostatic Force Lab
- Gene Machine II:
 - The Gene Network
- Isotopes and Mass
- Molecules and Light
- Photosynthesis
- Sun and Planet
- Work and Energy and more...

Send your ideas to phethelp@colorado.edu.

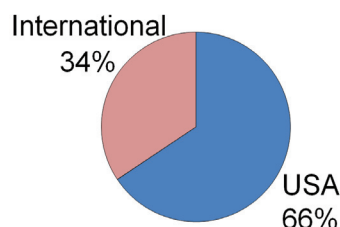


Did You Know???

PhET use is growing...



...and is international.



Top International Users

Canada
United Kingdom
Brazil
Germany
Australia
Netherlands

PhET's Website Improvements:

- Easier and faster to use: more categories, better search tools.
- More teacher resources:
 - Teacher tips, learning goals, and over 450 editable teacher-contributed activities.
- Entire website is now translatable.

New Frontiers at PhET

Recent Research Publications:

(1) *Factors promoting engaged exploration with computer simulations* (N.S. Podolefsky, K.K. Perkins, and W.K. Adams) **Physical Review Special Topics - Physics Education Research**, October 2010

This paper focuses on qualitative data gathered by interviewing students while they use the Wave Interference simulation. We use this case study to explain how the sims can support student engagement and exploration similar to the way scientists explore phenomena.

(2) *Teaching Physics Using PhET Simulations* (C.E. Wieman, W.K. Adams, P. Loeblein, and K.K. Perkins) **The Physics Teacher**, April 2010

Written for teachers by teachers, this article provides an overview of the different ways we've incorporated PhET sims into our courses, including lecture, individual or small group inquiry activities, homework, and lab. We highlight a few key ideas, including how to design activities which promote student questioning, encourage scientist-like exploration, and take advantage of the simulations' unique learning environment.

What's New

Stay Connected

Join us on Facebook, Twitter and our Blog to keep up with the latest news on PhET.

Upcoming Workshops:

Cyberlearning Tools for STEM Education

Berkeley, CA

March 8-9, 2011

NSTA Annual Conference

San Francisco, CA

March 10-13, 2011

ISTE

Philadelphia, PA

June 26-29, 2011

ACS

Denver, CO

August 28-Sept. 1 2011

Conferences Attended:

ISTE

Denver, CO June 2010

AAPT

Portland, OR July 2010

Conference on

Chemical Education

Denton, TX August 2010

Want to give a local workshop?

Check out our Workshop page:

http://phet.colorado.edu/teacher_ideas/workshops.php.